

## EOS Production Sites Network Performance Report

This is a monthly summary of EOS network performance testing between production sites for January 2007 -- comparing the measured performance against the requirements.

### Highlights:

- Mostly highly stable flows
  - The serious diurnal variation on all flows from LaRC (during the last half of December) was fixed in January.
  - GSFC → JPL AIRS iperf testing was retuned in February, improving the thruput and the rating.
- EROS downgrade last month was based on an erroneous requirement increase, not performance reduction. This has been corrected, and the rating increases back to "Adequate"
- Testing to and from GSFC-CSAFS and to GSFC-ECHO was discontinued at the end of January. This report is therefore the last one to include these results.
- Requirements Basis:
  - December '03 requirements from BAH.
  - Updated to handbook 1.4.1 (3/22/06)
  - Additional Updates Incorporated:
    - New AIRS reprocessing flows (8/06)
    - GEOS requirements – Flows began in Nov '06
    - All LaRC "Backhaul" Requirements removed
    - Extension of TRMM, QuikScat missions
  - Since current NISN routing has substantially all inter-center flows via PIP, Inter-center Science Flows (which were originally allocated to SIP) should now be added to the PIP requirement. This is planned for next month.
- Significant improvements in testing are indicated in Green, Problems in Red, Comments in Blue

### Ratings Changes:

#### Upgrades: ↑

GSFC → LaRC: Good → **Excellent**

GSFC → NSIDC: Almost Adequate → **Good**

Note: Performance stable – requirement reduced

GSFC → EROS: Almost Adequate → **Adequate**

Note: Downgrade last month was erroneous

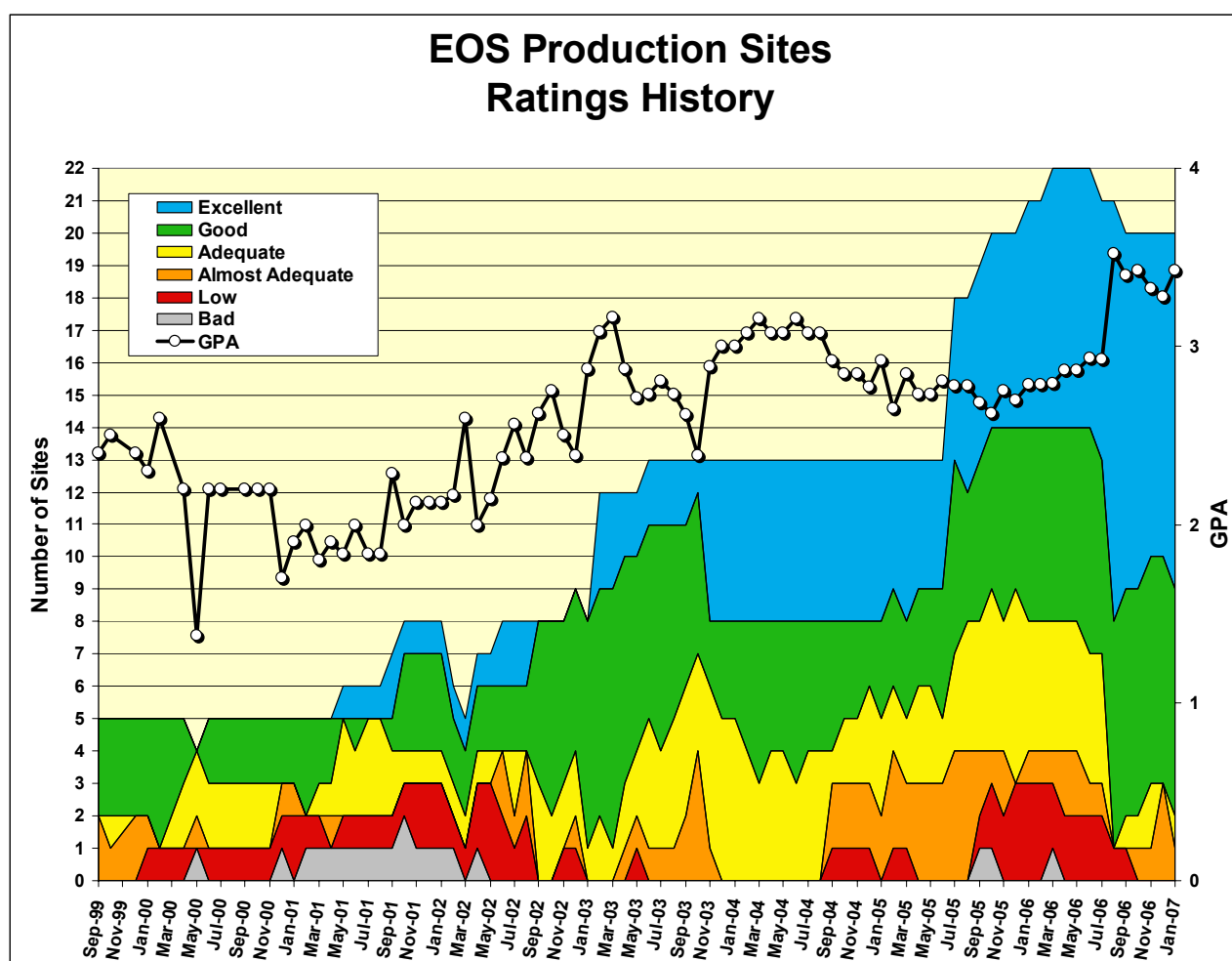
#### Downgrades: ↓ None

(See site discussion below for details)

**Ratings Categories:**

Rating	Value	Criteria
<b>Excellent:</b>	<b>4</b>	<b>Total Kbps</b> > Requirement * 3
<b>Good:</b>	<b>3</b>	1.3 * Requirement <= <b>Total Kbps</b> < Requirement * 3
<b>Adequate:</b>	<b>2</b>	Requirement < <b>Total Kbps</b> < Requirement * 1.3
<b>Almost Adequate:</b>	<b>1.5</b>	Requirement / 1.3 < <b>Total Kbps</b> < Requirement
<b>Low:</b>	<b>1</b>	Requirement / 3 < <b>Total Kbps</b> < Requirement / 1.3
<b>Bad:</b>	<b>0</b>	<b>Total Kbps</b> < Requirement / 3

Where Total Kbps = Integrated Kbps (where available), otherwise just iperf

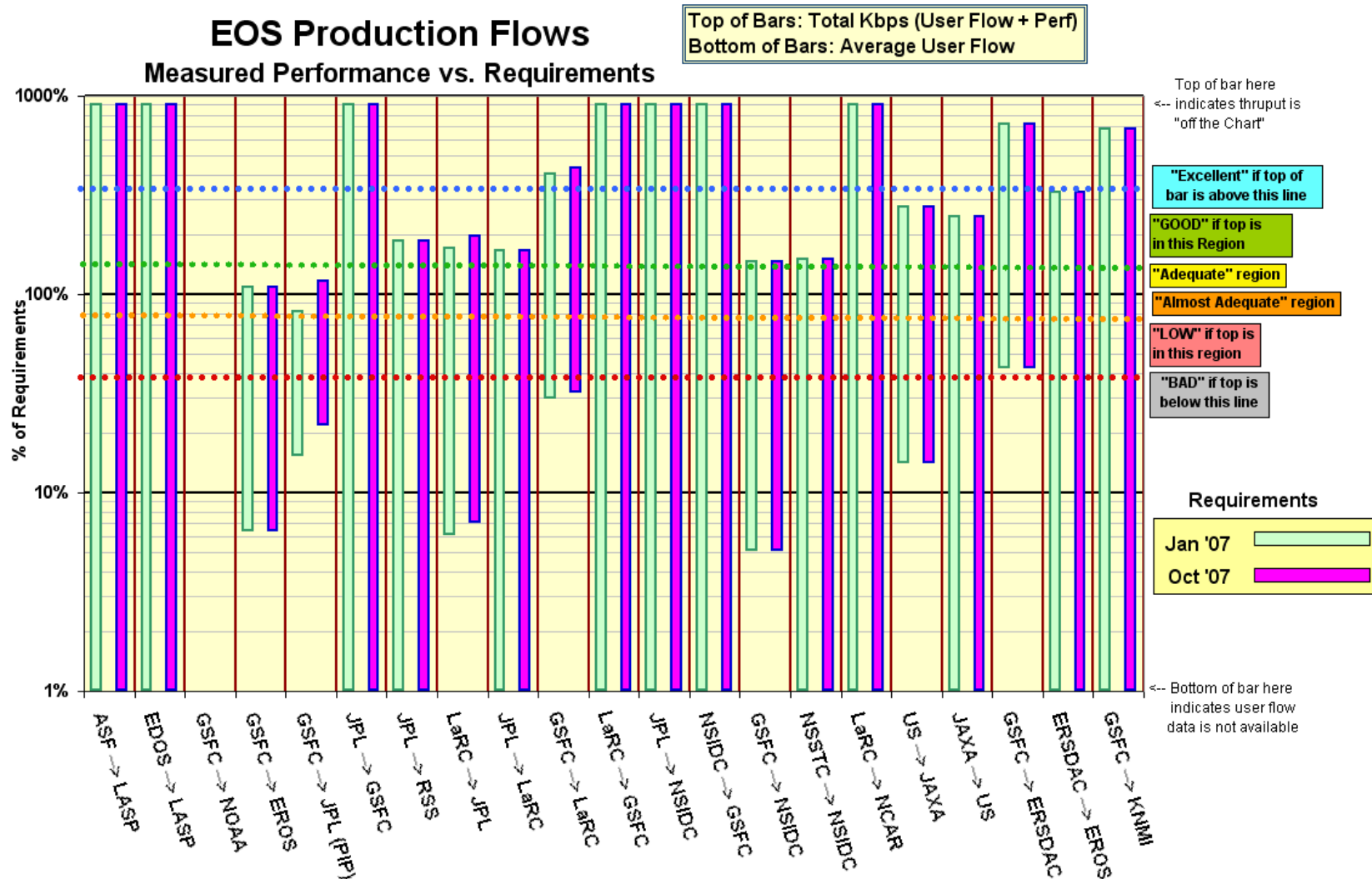
**Ratings History:**

The chart above shows the number of sites in each classification since EOS Production Site testing started in September 1999. Note that these ratings do NOT indicate absolute performance -- they are relative to the EOS requirements.

## Network Requirements vs. Measured Performance

January 2007		Requirements (mbps)		Testing					Ratings		
Source → Destination	Team (s)	Current	Future	Source → Dest Nodes	Avg User Flow mbps	iperf Avg mbps	Total Avg mbps	Integrated mbps	Rating re Current Requirements		Rating re
		Jan-07	Oct-07						Jan-07	Last Month	Oct-07
GSFC → ASF	QuikScat, Radarsat	n/a	n/a	GSFC-CSAFS → ASF	n/a	1.4	1.44		n/a	n/a	n/a
ASF → LASP	QuikScat	0.02	0.02	ASF → LASP [via IOnet]	n/a	1.1	1.08		Excellent	E	Excellent
EDOS → LASP	ICESat, QuikScat	0.4	0.4	EDOS → LASP [via IOnet]	n/a	23.5	23.5		Excellent	E	Excellent
GSFC → NOAA	QuikScat	0.0	0.0	n/a	n/a	n/a	n/a		n/a	n/a	n/a
GSFC → EROS	MODIS, LandSat	285.4	285.4	ENPL-PTH → EROS PTH	18.1	309.9	328.0	310.7	Adequate	A	Adequate
GSFC → JPL (PIP)	AIRS, ISTs	57.6	40.5	GDAAC → JPL-AIRS	8.8	46.8	55.7	47.3	AA	AA	Adequate
JPL → GSFC	AMSR-E, MISR, etc.	7.4	7.4	JPL-PTH → GSFC-PTH	n/a	88.7	88.7		Excellent	E	Excellent
JPL → RSS	AMSR-E	2.5	2.5	JPL-PODAAC → RSS	n/a	4.7	4.7		GOOD	G	GOOD
LaRC → JPL	TES, MISR	45.8	39.6	LARC-DAAC → JPL-TES	2.8	78.0	80.8	78.0	GOOD	G	GOOD
JPL → LaRC	TES	52.6	52.6	JPL-PTH → LARC-PTH	n/a	87.3	87.3		GOOD	G	GOOD
GSFC → LaRC	CERES, MISR, MOPITT	71.7	67.2	GDAAC → LDAAC	21.4	286.6	308.0	292.1	Excellent	G	Excellent
LaRC → GSFC	MODIS, TES	0.2	0.2	LDAAC → GDAAC	n/a	239.5	239.5		Excellent	E	Excellent
JPL → NSIDC	AMSR-E	1.3	1.3	JPL-PTH → NSIDC SIDADS	n/a	88.7	88.7		Excellent	E	Excellent
NSIDC → GSFC	MODIS, ICESAT, QuikScat	13.3	13.3	NSIDC DAAC → GDAAC	0.1	123.0	123.1	123.0	Excellent	E	Excellent
GSFC → NSIDC	MODIS, ICESAT, QuikScat	64.1	64.1	GDAAC → NSIDC-DAAC	3.3	93.8	97.1	93.8	GOOD	AA	GOOD
NSSTC → NSIDC	AMSR-E	7.5	7.5	NSSTC → NSIDC DAAC	n/a	11.2	11.2		GOOD	G	GOOD
LaRC → NCAR	HIRDLS	5.4	5.4	LDAAC → NCAR	n/a	84.5	84.5		Excellent	E	Excellent
US → JAXA	QuikScat, TRMM, AMSR	2.0	2.0	GSFC-CSAFS → JAXA DDS	0.3	5.5	5.8	5.5	GOOD	G	GOOD
JAXA → US	AMSR-E	1.3	1.3	JAXA DDS → JPL-QSCAT	n/a	3.2	3.2		GOOD	G	GOOD
GSFC → ERSDAC	ASTER	12.5	12.5	ENPL-PTH → ERSDAC	5.3	89.3	94.6	89.5	Excellent	E	Excellent
ERSDAC → EROS	ASTER	26.8	26.8	ERSDAC → EROS PTH	n/a	87.7	87.7		Excellent	E	Excellent
GSFC → KNMI	OMI	3.3	3.3	GSFC-OMISIPS → OMI-PDR	n/a	22.4	22.4		Excellent	E	Excellent
Notes:	Flow Requirements include:					Ratings					
	TRMM, Terra, Aqua, Aura, ICESAT, QuikScat, GEOS					Summary			Jan-07	Req	Oct-07
									Score	Prev	Score
*Criteria:	Excellent	Total Kbps > Requirement * 3				Excellent			11	10	11
	GOOD	1.3 * Requirement <= Total Kbps < Requirement * 3				GOOD			7	7	7
	Adequate	Requirement < Total Kbps < Requirement * 1.3				Adequate			1	2	2
	Almost Adequate	Requirement / 1.3 < Total Kbps < Requirement				Almost Adequate			1	1	0
	LOW	Requirement / 3 < Total Kbps < Requirement / 1.3				LOW			0	0	0
	BAD	Total Kbps < Requirement / 3				BAD			0	0	0
							Total		20	20	20
							GPA		3.43	3.33	3.45

This graph shows two bars for each source-destination pair. Each bar uses the same actual measured performance, but compares it to the requirements for two different times (January and October '07). Thus if the requirements increase, the same measured performance will be lower in comparison.



Interpretation: The bottom of each bar is the average measured user flow to a site. Thus the bottom of each bar indicates the relationship between the requirements and actual flows. Note that the requirements include a 50% contingency factor above what was specified by the projects, so a value of 66% would indicate that the project is flowing as much data as requested. The top of each bar represents the integrated measurement – this value is used to determine the ratings.

**1) EROS:**

Ratings: GSFC → EROS: ↑ Almost Adequate → **Adequate**  
 ERSDAC → EROS: Continued **Excellent**

Web Page: <http://ensight.eos.nasa.gov/Networks/production/EROS.shtml>  
[http://ensight.eos.nasa.gov/Networks/emsnet/EROS\\_PTH.shtml](http://ensight.eos.nasa.gov/Networks/emsnet/EROS_PTH.shtml)

## Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
GSFC-ENPL-PTH → EROS PTH	315.8	309.9	273.9	18.1	310.7
GSFC-DAAC → EROS LPDAAC	299.0	204.1	75.4	40.3	208.3
ERSDAC → EROS	88.7	87.7	81.9		
NSIDC → EROS	123.3	118.8	105.8		
LaRC → EROS	92.4	92.2	70.0		
EROS LPDAAC → GSFC DAAC	126.8	119.9	104.2		
EROS LPDAAC → GSFC ECHO	85.8	72.5	56.9		
EROS PTH → GSFC PTH	466.6	438.5	391.1		

## Requirements:

Source → Dest	Date	mbps	Rating
GSFC → EROS	→ Mar '08	285.4	<b>Adequate</b>
ERSDAC → EROS	FY '06, '07	26.8	<b>Excellent</b>

Comments:

**GSFC → EROS:** The performance this month was essentially stable. Last month the requirement was erroneously increased by 35%, dropping the rating from Adequate to "Almost Adequate". However, this error has now been corrected, so the rating again is "Adequate"

The rating is based on tests between the PTH hosts – they are outside the ECS firewalls, and therefore normally have higher thrupt than between the DAACs. This therefore is a better measure of true network capability. The user flow this month was very low, and had only a small contribution to the integrated measurement. The rating is based on the "Integrated" measurement, and as usual is lower than the sum of the User Flow + iperf.

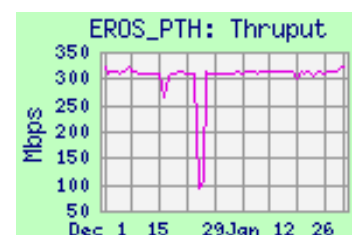
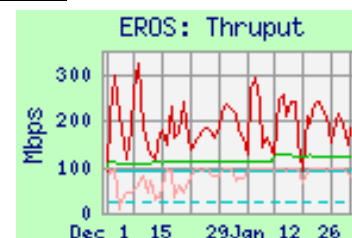
The route between GSFC and EROS is now via MAX to Abilene to StarLight (Chicago) to EROS via a private OC-12 (622 mbps). The GSFC to StarLight portion is planned to be switched this spring to the NISN backbone (2.4 Gbps) to the Chicago CIEF, then a GigE to StarLight.

**ERSDAC → EROS:** The median thrupt from ERSDAC to EDC-PTH (in support of the ERSDAC to EDC ASTER flow, replacing tapes) was stable on the new route (limited by the ERSDAC 100 mbps tail circuit), and is more than 3 times the 26.8 mbps requirement, resulting in an "Excellent" rating.

**NSIDC → EROS:** The median thrupt from NSIDC-SIDADS to EDC improved slightly this month.

**LaRC → EROS:** The diurnal variation of the thrupt from LaRC-PTH to EDC-PTH ended on 6 January

**EROS → GSFC:** The thrupt for tests from EROS to GSFC DAAC and GSFC-ECHO were very stable this month. Thrupt from EROS-PTH to GSFC-PTH increased from a median of 333 mbps last month, due to a hardware upgrade of the EROS-PTH host.



## 2) JPL:

### 2.1) JPL ↔ GSFC:

Ratings: GSFC → JPL: Continued **Almost Adequate**  
JPL → GSFC: Continued **Excellent**

Web Pages:

[http://ensight.eos.nasa.gov/Organizations/production/JPL\\_QSCAT.shtml](http://ensight.eos.nasa.gov/Organizations/production/JPL_QSCAT.shtml)  
[http://ensight.eos.nasa.gov/Organizations/production/JPL\\_PODAAC.shtml](http://ensight.eos.nasa.gov/Organizations/production/JPL_PODAAC.shtml)  
[http://ensight.eos.nasa.gov/Missions/aqua/JPL\\_AIRS.shtml](http://ensight.eos.nasa.gov/Missions/aqua/JPL_AIRS.shtml)

Test Results:

Source → Dest	NET	Medians of daily tests (mbps)			User Flow	Integrated
		Best	Median	Worst		
GSFC-DAAC → JPL-AIRS	PIP	47.4	46.8	23.7	8.9	47.3
GSFC-CNE → JPL-AIRS	SIP	47.2	45.1	31.4		
GSFC-CSAFS → JPL-QSCAT	PIP	7.5	7.3	4.4		
GSFC-CSAFS → JPL-QSCAT-BU	PIP	7.3	7.1	3.8		
GSFC-PTH → JPL-QSCAT	PIP	86.3	73.6	34.9		
GSFC-PTH → JPL-PODAAC	PIP	90.9	85.2	47.3		
GSFC-CNE → JPL-MISR	SIP	39.7	27.1	11.3		
JPL-PTH → GSFC PTH	PIP	89.2	88.7	59.9		
JPL-PODAAC → GSFC DAAC	PIP	39.8	38.6	22.5		

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → JPL Combined	FY '07	57.6	<b>Almost Adequate</b>
JPL → GSFC combined	CY '06-09	7.4	<b>Excellent</b>

#### Comments:

#### GSFC → JPL:

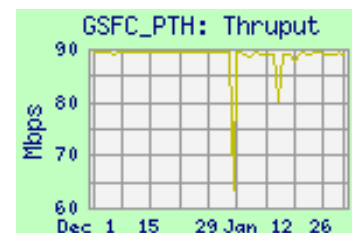
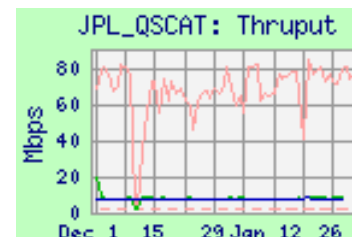
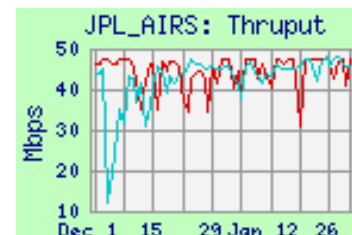
**AIRS:** Performance from GSFC (DAAC and CNE) to JPL-AIRS was very stable this month, after dramatically improving with the NISN SIP WANR upgrade in April '06. Note, however, that the test parameters were previously tuned prior to the WANR upgrade. Although the tests fully utilized the pre-WANR circuits, they did not do so when the network capacity was increased. Thus the performance above reflects limitations caused by the test parameters, not the network. These parameters were retuned in early February...the performance thereby increased, and the rating will also.

**Note:** The requirement was updated in November '06 to reflect increased AIRS reprocessing requirements and GEOS flows (was 22.2 mbps previously).

Performance from the GSFC-DAAC is used as the basis of the ratings, and is now about 20% below this increased requirement (for all PIP flows combined), so the rating remains "Almost Adequate".

**QSCAT:** The performance from CSAFS was very stable this month, limited by the CSAFS 10 mbps Ethernet connection -- this flow did not significantly benefit from the WANR upgrade. Thruput from GSFC-PTH is about 10x as much as from CSAFS. CSAFS testing was discontinued in January.

**JPL → GSFC:** The previous JPL-PODAAC to GSFC-DAAC testing was replaced by JPL-PTH to GSFC-PTH testing to better reflect the network capabilities. The rating remains "Excellent".



**2.2) JPL ↔ LaRC**

Ratings: LaRC → JPL: Continued  
JPL → LaRC: Continued

**Good**  
**Good**

Web Pages:

[http://ensight.eos.nasa.gov/Organizations/production/JPL\\_TES.shtml](http://ensight.eos.nasa.gov/Organizations/production/JPL_TES.shtml)

[http://ensight.eos.nasa.gov/Missions/terra/JPL\\_MISR.shtml](http://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml)

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
LaRC DAAC → JPL-TES	86.6	78.0	52.0	2.6	78.1
LaRC PTH → JPL-TES	88.9	83.9	61.8		
LaRC PTH → JPL-TES sftp	1.79	1.79	1.69		
LaRC DAAC → JPL-MISR	75.6	52.1	27.4		
JPL-PTH → LaRC PTH	87.6	87.3	68.5		

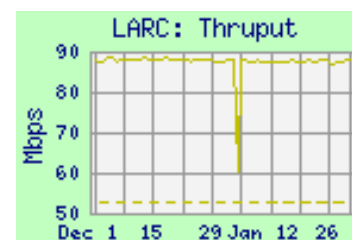
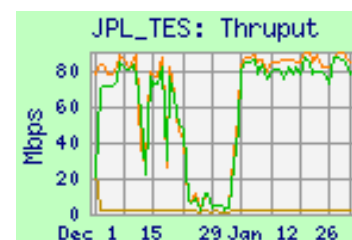
Requirements:

Source → Dest	Date	Mbps	Rating
LaRC DAAC → JPL-TES	FY '07	29.8	Good
LaRC DAAC → JPL-MISR	FY '07	18.5	Good
LaRC DAAC → JPL-Combined	FY '07	45.8	Good
JPL → LaRC	FY '07	52.6	Good

**Comments:**

**LaRC → JPL:** Performance recovered in early January from the increased diurnal congestion observed in the last half of December. The combined requirement increased in November '06, with the addition of GEOS flows (was 39.6 mbps previously). The rating remains "Good". Sftp results are much lower than iperf, due to TCP window limitations.

**JPL → LaRC:** This requirement is for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. The measured thruput was very stable this month after improving dramatically with the NISN WANR. The rating remains "Good".

**2.3) ERSDAC → JPL ASTER IST**

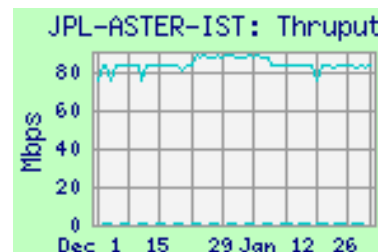
Rating: Continued **Excellent**

Web Page: [http://ensight.eos.nasa.gov/Organizations/production/JPL\\_PTH.shtml](http://ensight.eos.nasa.gov/Organizations/production/JPL_PTH.shtml)

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER-IST	82.2	81.6	50.9

**Comments:** This test was initiated in March '05, via APAN replacing the EBnet circuit. The typical 82 mbps must be well in excess of the requirements (IST requirements are generally 311 kbps).





### 3) Boulder CO:

#### 3.1) GSFC ← → NSIDC DAAC:

Ratings: NSIDC → GSFC: Continued **Excellent**

GSFC → NSIDC: ↑ Almost Adequate → **Good**

Web Page: <http://ensight.eos.nasa.gov/Organizations/production/NSIDC.shtml>

##### Test Results:

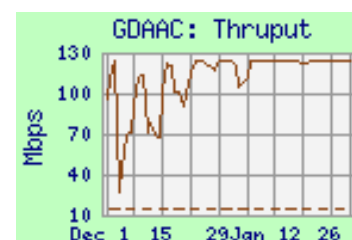
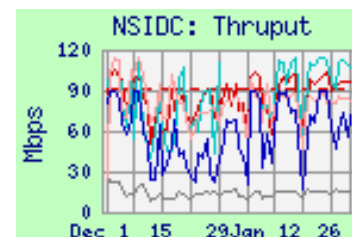
Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
GSFC-DAAC → NSIDC-DAAC	107.1	93.8	35.6	3.3	93.8
GSFC-PTH → NSIDC-DAAC	96.1	83.0	41.1		
GSFC-ISIPS → NSIDC (iperf)	113.3	106.4	40.8		
GSFC-ISIPS → NSIDC (ftp)	21.8	13.9	6.9		
NSIDC DAAC → GSFC-DAAC	123.9	123.0	104.5		
NSIDC → GSFC-ISIPS (iperf)	84.6	83.0	77.7		

##### Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → NSIDC	CY '07	64.1	Good
NSIDC → GSFC	CY '06-'07	13.3	Excellent

**Comments: GSFC → NSIDC:** This rating is based on testing from GDAAC to the NSIDC DAAC. The iperf and integrated thrupt values were restored this month, after declining last month, after increasing about 25% due to the NISN WANR upgrade. This requirement varies from month to month, based on planned ICESAT reprocessing. This month the reprocessing **IS NOT** included. The Integrated thrupt is now Above this higher requirement by more than 30%, so the rating improves to “Good”. Note that in November and December '06 reprocessing **was** included – the requirement was higher, so the same performance would have rated “Adequate”.

**NSIDC → GSFC:** December's congestion cleared in January, so performance from NSIDC to GSFC (both GDAAC and ISIPS) remains “Excellent”.



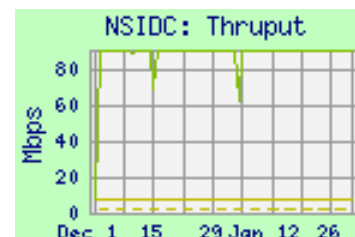
#### 3.2) JPL → NSIDC:

Ratings: JPL → NSIDC: Continued **Excellent**

##### Test Results:

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
JPL PTH → NSIDC-SIDADS	88.8	88.7	24.6	1.34
JPL-PODAAC → NSIDC-SIDADS	7.2	7.2	6.8	1.34

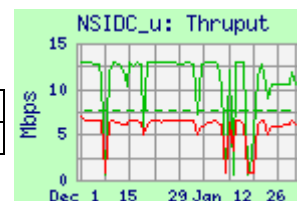
**Comments:** In October an additional test from JPL-PTH to NSIDC-SIDADS was added to more fully assess the true network capability – the thrupt is much higher than from PODAAC. Thrupt from JPL was stable this month after the previous improvement from the NISN WANR upgrade. The rating remains “Excellent”.





**3.3) NSSTC → NSIDC:**Ratings: NSSTC → NSIDC: Continued **Good**Web Pages: [http://ensight.eos.nasa.gov/Missions/aqua/NSIDC\\_u.shtml](http://ensight.eos.nasa.gov/Missions/aqua/NSIDC_u.shtml)**Test Results:**

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
NSSTC → NSIDC DAAC (iperf)	12.8	11.2	0.3	7.5
NSSTC → NSIDC DAAC (ftp)	6.4	5.9	2.5	

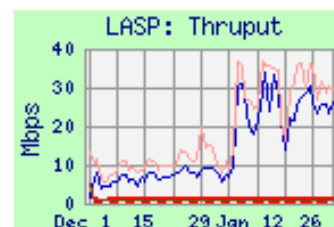


**Comments:** NSSTC (Huntsville, AL) sends AMSR-E L2/L3 data to NSIDC. Median thrupt is stable and more than 30 % over the requirement, so is rated "Good".

However, performance is "bimodal". The above values are most common, but there are various periods, some short, some up to 8 hours, where thrupt is about 100 kbps. This is probably related to user data flows.

**3.4) LASP:**Ratings: GSFC → LASP: Continued **Excellent**ASF → LASP: Continued **Excellent**Web Page: <http://ensight.eos.nasa.gov/Organizations/production/LASP.shtml>**Test Results:**

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
ASF → LASP	1.33	1.08	0.50	0.024
GSFC EDOS → LASP	35.5	23.5	6.0	0.4
GSFC PTH → LASP (iperf)	36.9	29.1	8.2	
GSFC PTH → LASP (sftp)	0.50	0.50	0.48	



**Comments:** The requirements are now divided into ASF and GSFC sources:

**ASF → LASP:** Thrupt from ASF to LASP is limited by ASF T1 circuit, rating "Excellent", due to the modest requirement

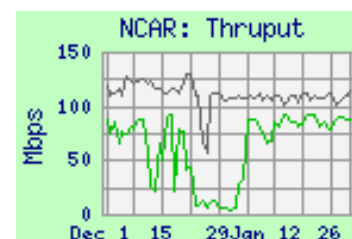
**GSFC → LASP:** Iperf thrupt improved to about 30 mbps in early January -- thrupt is well above the requirement; the rating continues "Excellent". But sftp thrupt (although stable) is MUCH lower than iperf, due to window size limitations. A patch is available.

**3.5) NCAR:**Ratings: LaRC → NCAR: Continued **Excellent**GSFC → NCAR: Continued **Excellent**Web Pages <http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml>**Test Results:**

Source → Dest	Medians of daily tests (mbps)			Requirement
	Best	Median	Worst	
LaRC → NCAR	90.9	84.5	41.5	5.4
GSFC → NCAR	125.8	106.5	85.2	5.1

**Comments:** NCAR (Boulder, CO) is a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS QA (Aura, from GSFC) requirements. The LaRC outflow congestion problem was fixed in January, so thrupt returned to previous levels. Thrupt is well above 3 x the requirement, so the rating remains "Excellent".

From GSFC the median thrupt is steady at well over 3 x the requirement, so that rating also remains "Excellent".



**4) GSFC ↔ LaRC:**

Ratings: GSFC → LaRC: ↑ Good → **Excellent**  
 LDAAC → GDAAC: Continued **Excellent**

Web Pages: <http://ensight.eos.nasa.gov/Organizations/production/LARC.shtml>  
<http://ensight.eos.nasa.gov/Organizations/production/LATIS.shtml>

**Test Results:**

Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
GDAAC → LDAAC	338.6	286.6	183.2	21.4	292.1
GSFC-NISN → LaTIS	92.7	91.1	84.0		
GSFC-PTH → LaRC-PTH	93.4	93.0	79.6		
GSFC-PTH → LaRC-ANGe	82.0	80.3	71.2		
LDAAC → GDAAC	314.0	239.5	171.5		
LDAAC → GSFC-ECHO	88.4	80.7	64.9		

**Requirements:**

Source → Dest	Date	Mbps	Rating
GSFC → LARC (Combined)	11/06 – 2/07	71.7	Excellent
LDAAC → GDAAC	FY '07	0.2	Excellent

**Comments:** Performance of all GSFC ↔ LaRC flows improved dramatically with the NISN WANR upgrade in August '06.

**GSFC → LaRC:** The combined requirement had been split between LDAAC and LaTIS when the flows were on separate circuits, but is now treated as a single requirement as they have been both on PIP since Feb '05. The rating is now based on the GDAAC to LaRC ECS DAAC thrupt, compared to the combined requirement. This requirement increased in November '06 with the addition of GEOS flows (was 67 mbps last month).

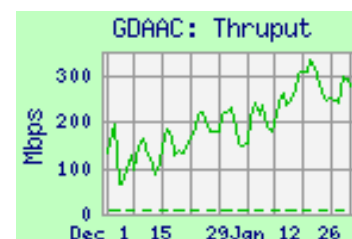
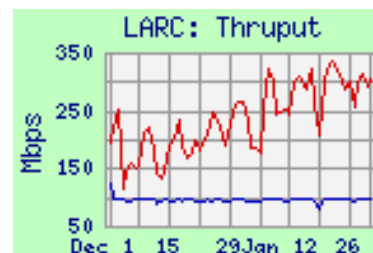
With this increased requirement, the improved performance from **GSFC → LaRC ECS DAAC** median thrupt is again ABOVE 3 x the combined requirement, so the combined rating improves to "Excellent". The diurnal variation (ratio of median daily best to median daily worst) was also reduced this month—was 2.6:1 last month, now 1.8:1, due to higher daily medians and daily worst values.

Also note: the lower peaks (around 90 mbps) to LaTIS, LaRC-PTH, and LaRC-ANGe are limited by 100 mbps LAN connections.

**LaRC → GSFC:** Performance from LDAAC → GDAAC improved this month, with the correction of the severe LaRC outflow diurnal variation. The thrupt remained much more than 3 x this requirement, so the rating continues as "Excellent".

The thrupt from LDAAC to GSFC-ECHO is lower than LDAAC to GDAAC due to a 100 mbps LAN connection.

The LaRC to GSFC requirement will be increased next month, in recognition that the former SIP flows are now routed via PIP, so should be included in the total requirement.



**5) US ↔ JAXA:**

Ratings: JAXA → US: Continued  
US → JAXA: Continued

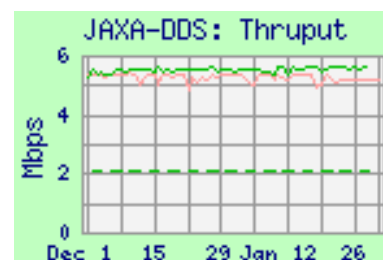
**Good**  
**Good**

Web Pages

[http://ensight.eos.nasa.gov/Organizations/production/JAXA\\_EOC.shtml](http://ensight.eos.nasa.gov/Organizations/production/JAXA_EOC.shtml)  
[http://ensight.eos.nasa.gov/Networks/emsnet/JAXA\\_HEOC.shtml](http://ensight.eos.nasa.gov/Networks/emsnet/JAXA_HEOC.shtml)  
[http://ensight.eos.nasa.gov/Organizations/production/JPL\\_QSCAT.shtml](http://ensight.eos.nasa.gov/Organizations/production/JPL_QSCAT.shtml)  
[http://ensight.eos.nasa.gov/Organizations/production/GSFC\\_SAFS.shtml](http://ensight.eos.nasa.gov/Organizations/production/GSFC_SAFS.shtml)

**Test Results:**

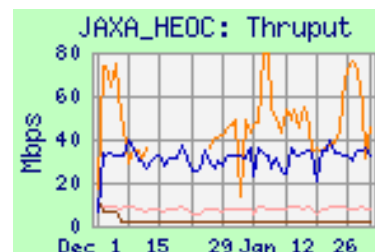
Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
GSFC-CSAFS → JAXA-DDS	5.78	5.51	4.02	0.28	5.52
GSFC-EDOS → JAXA-DDS	5.38	5.12	4.24		
GSFC-EDOS → JAXA-azusa	8.12	7.40	2.99		
GSFC-ENPL → JAXA-azusa	73.5	47.4	22.9		
GSFC-PTH → JAXA-azusa	48.0	32.4	17.2		
GSFC-PTH → JAXA (sftp)	0.83	0.82	0.77		
JAXA-DDS → JPL-QSCAT	3.18	3.14	2.83		
JAXA-DDS → GSFC-DAAC	1.98	1.96	1.92		
JAXA-azusa → GSFC-MAX	8.95	8.85	8.46		

**Requirements:**

Source → Dest	Date	Mbps	Rating
GSFC → JAXA	Nov '03 – Mar '08	1.99	Good
JAXA → US	Nov '03 – Mar '08	1.28	Good

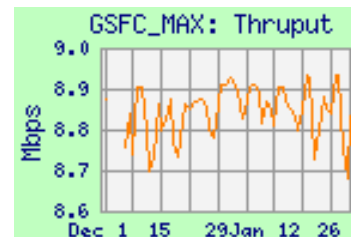
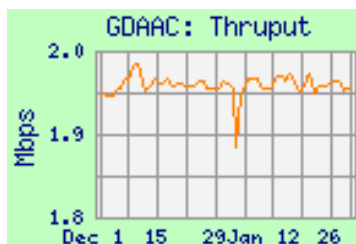
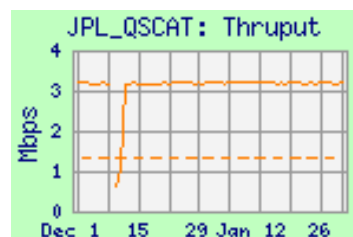
**Comments:** The US → JAXA requirement was updated in October '06 to reflect the extension of the TRMM and QScat missions (the requirement was 1.43 mbps previously). The JAXA flows were moved to APAN / Sinet -in August '06. Prior to this switch the flows used a dedicated 2 mbps ATM circuit from JPL to JAXA, using NISN PIP between GSFC and JPL. Performance on that circuit was stable at about 1.5 mbps.

**US → JAXA:** Performance from GSFC improved substantially with the switch to APAN / Sinet, and is now limited by TCP window size and a 10 mbps Ethernet on JAXA's DDS node, and the GSFC-EDOS-Mail node. Thruput was stable this month. With the increased requirement, the thruput is below 3 x the requirement, so the rating remains "Good".



Performance from GSFC-PTH and GSFC-ENPL to the azusa test node at JAXA is not limited by a 10 mbps Ethernet, so its much higher performance more accurately shows the capability of the network. But thruput using sftp between these same nodes is much lower, limited by ssh window size. A patch is available, but is not installed.

**JAXA → US:** Performance improved with the switch to APAN / Sinet in August, and is now also limited by TCP window size and 10 mbps Ethernet. But it has not yet been retuned to fully utilize the increased network capability. The thruput from JAXA to JPL was more than 30% over the requirement, but less than 3 x, so the rating remains "Good".



**6) ERSDAC ↔ US:**Rating: Continued **Excellent**Web Page : <http://ensight.eos.nasa.gov/Organizations/production/ERSDAC.shtml>**US → ERSDAC Test Results:**

Source → Dest	Medians of daily tests (mbps)			User Flow	Integrated
	Best	Median	Worst		
GDAAC → ERSDAC	35.2	28.9	15.2	5.3	89.5
GSFC ENPL (FE) → ERSDAC	90.0	89.3	72.7		
GSFC-EDOS → ERSDAC	5.8	5.8	2.8		

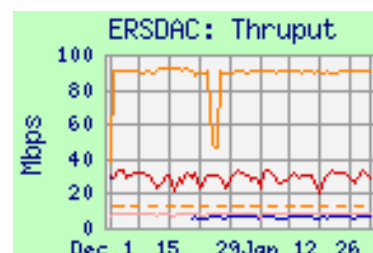
Requirements:

Source → Dest	FY	Mbps	Rating
GSFC → ERSDAC	'03 - '07	12.5	Excellent

**Comments:** Dataflow from GSFC to ERSDAC was switched to APAN in February '05, and the performance above is via that route.

The throughput from GDAAC is apparently limited by packet loss at the GigE to FastE switch at Tokyo-XP. The GigE GDAAC source does not see any bottlenecks until this switch (The Abilene and APAN backbones are 10 Gbps), and thus exceeds capacity of the switch's FastE output circuit. But the FastE connected GSFC-ENPL node is limited to 100 mbps by its own interface, so does not suffer performance degrading packet loss – its performance is much higher. Testing from EDOS to ERSDAC is currently limited by a 10 mbps Ethernet in its path – a waiver request has now been approved to use the FastE interface.

The requirement now includes the level 0 flows which used to be sent by tapes. The throughput increased in Nov '06 (and got steadier from GSFC-ENPL at the same time). It continues to be more than 3 x this requirement, so the rating remains "Excellent".

**ERSDAC → US Test Results:**

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → EROS	88.7	87.7	81.9
ERSDAC → JPL-ASTER IST	82.2	81.6	50.9

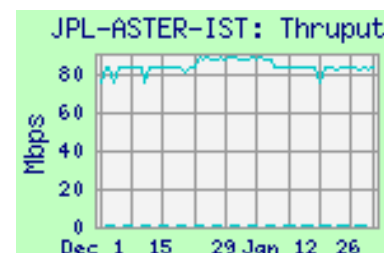
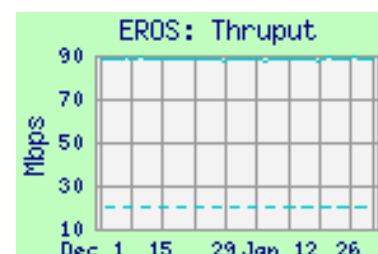
Requirements:

Source → Dest	Date	mbps	Rating
ERSDAC → EROS	FY '07	26.8	Excellent

**Comments:**

**ERSDAC → EROS:** The results from this test (in support of the ERSDAC to EROS ASTER flow, replacing tapes) were stable this month. Thruput improved to these present values in April '05 after the Abilene to NGIX-E connection was repaired. The median thruput is more than 3 x the requirement, so the rating remains "Excellent"

**ERSDAC → JPL-ASTER-IST:** This test was initiated in March '05, via APAN replacing the EBnet circuit. The results are much higher than previously via the 1 mbps ATM circuit, and should be considered "Excellent" (no requirement is specified at this time – but other IST requirements are 311 kbps)



**7) ASF**Rating: Continued **Excellent**Web Page: <http://ensight.eos.nasa.gov/Organizations/production/ASF.shtml>

Test Results:

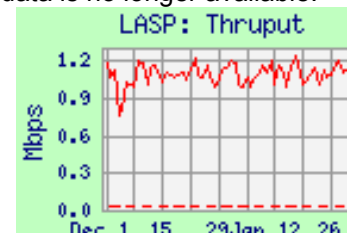
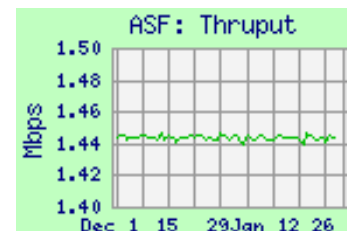
Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
GSFC-CSAFS → ASF	1.45	1.44	1.05
ASF → LASP	1.33	1.08	0.50
ASF → GSFC-CSAFS	1.38	1.30	0.64

**Comments:** Testing to ASF transitioned to IOnet in April '06 – accordingly, testing was discontinued from ASF to NOAA and JPL-SEAPAC; also user flow data is no longer available. Performance to ASF has been consistent with the T1 (1.5 mbps) circuit capacity.

Performance from ASF to LASP and CSAFS was stable; the rating remains “Excellent”. Testing to and from GSFC-CSAFS was discontinued in Jan '07. Testing from GSFC to ASF needs firewall changes at ASF to be restored.

Requirements:

Source → Dest	Date	kbps	Rating
ASF → LASP	FY '07	24	Excellent

**8) Other SIPS Sites:**

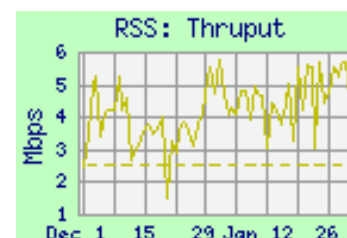
Web Pages <http://ensight.eos.nasa.gov/Missions/aqua/RSS.shtml>  
[http://ensight.eos.nasa.gov/Missions/aura/KNMI\\_OMIPDR.shtml](http://ensight.eos.nasa.gov/Missions/aura/KNMI_OMIPDR.shtml)

Test Results:

Source → Dest	Medians of daily tests (mbps)			Requirement	Rating
	Best	Median	Worst		
JPL → RSS	5.68	4.65	1.95	2.4	Continued Good
OMISIPS → KNMI-ODPS	22.5	22.3	18.5	3.3	Continued Excellent

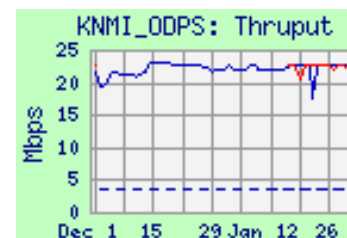
**Comments:**

**8.1 RSS:** RSS (Santa Rosa, CA) is a SIPS for AMSR-E, receiving data from JPL, and sending its results to GHCC (aka NSSTC) (Huntsville, AL). The NISN dedicated circuit from JPL to RSS was upgraded in August '05 from 2 T1s (3 mbps) to 4 T1s (6 mbps) to accommodate the larger RSS to GHCC flow. This month the thruput was less noisy and mostly stable. The iperf thruput is again more than 30% above the requirement, so the rating remains “Good”. User flow data remains unavailable on this circuit.



Note that with the present configuration (passive servers at both RSS and GHCC), the RSS to GHCC performance cannot be tested.

**8.2 KNMI:** KNMI (DeBilt, Netherlands) is a SIPS and QA site for OMI (Aura). The route from GSFC is via MAX to Abilene, now peering in DC with Geant's 10Gbps circuit to Frankfurt. Surfnet then connects to Amsterdam via a 10 gbps link. The rating is based on the results to the ODPS primary server, protected by a firewall, and is quite a bit lower than previously to the Backup server, which was outside the firewall



This month testing was added from OMISIPS at GSFC; results are quite similar to results from GSFC-PTH. The rating is now based on testing from this node. Thruput remains well above 3 x the requirement, rating “Excellent”.